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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,470

03/10/2005

Masaru Mitsui

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EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,470	<b>Applicant(s)</b> MITSUI, MASARU	
	<b>Examiner</b> Rodney G. McDonald	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: ____.                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/10/05, 11/14/06, 12/29/06, 7/16/07.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al. (Japan 2001-303243).

Regarding claim 8, Watanabe et al. teach a sputtering target containing silicon having a hardness of 1,300 Hv or less. (Machine Translation Claim 1) The language in claim 8 "for manufacturing a mask blank" is interpreted by the examiner to be intended use language and is given no weight for the purposes of this rejection.

Regarding claim 9, Watanabe et al. teach the sputtering target to contain a metal silicide compound. (Abstract; Machine Translation Claim 1) The language in claim 9 "for manufacturing a mask blank" is interpreted by the examiner to be intended use language and is given no weight for the purposes of this rejection.

Regarding claim 10, Watanabe et al. teach the sputtering target to contain silicon of 70 to 95 atm%. (Abstract; Machine Translation paragraph 0024-0025) The language in claim 10 "for manufacturing a mask blank" is interpreted by the examiner to be intended use language and is given no weight for the purposes of this rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui et al. (U.S. Pat. 5,942,356) in view of Watanabe et al. (Japan 2001-303243).

Regarding claim 1, Mitsui teach a method for manufacturing a mask blank having a thin film for forming a mask pattern on a substrate. The thin film is formed by a sputtering method using a target containing silicon. (Column 1 lines 5-15; Column 3 lines 7-28; Column 3 lines 45-53; Column 7 lines 25-36)

Regarding claim 3, Mitsui teach the thin film formed by a reactive sputtering method in an atmosphere of nitrogen. (Column 7 lines 25-36)

Regarding claim 4, Mitsui teach the sputtering target contains silicon of 70 to 95 atm%. (Column 3 lines 45-53)

Regarding claim 5, Mitsui teach the thin film is a light semi-transmitting film and the mask blank is a phase shift mask blank. (See Abstract; Column 4 lines 35-38)

Regarding claim 7, Mitsui et al. teach patterning the thin film of the mask blank. (Column 9 lines 21-30)

Regarding claim 11, Mitsui et al. teach a method for manufacturing a phase shift mask blank by sputtering in an atmosphere containing nitrogen using a target containing metal and silicon to deposit a light semi-transmitting film containing metal, silicon, and

Art Unit: 1795

nitrogen on a transparent substrate. (Column 1 lines 5-15; Column 3 lines 7-28;  
Column 3 lines 45-53; Column 7 lines 25-36)

The differences between Mitsui et al. and the present claims is that the hardness of the sputtering target is not discussed (Claims 1, 2) and utilizing a target with a hardness that will reduce defects in the deposited film is not discussed (claim 11).

Regarding claims 1, 2, Watanabe et al. teach utilizing a metal silicide target with a Vickers hardness of 1300 or less to produce films without defects because generation of particles are suppressed from the target. (See Abstract)

Regarding claim 11, Watanabe et al. teach utilizing a metal silicide target with a Vickers hardness of 1300 or less to produce films without defects because generation of particles are suppressed from the target. (See Abstract)

The motivation for utilizing the features of Watanabe et al. is that it prevents particle generation from the target which produces defects in the deposited films. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Mitsui et al. by utilizing the features of Watanabe et al. because it allows preventing defects in films.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui et al. in view of Watanabe et al. as applied to claim 1 above, and further in view of Okubo (Japan 07-128840).

The difference not yet discussed is the use of a metal film formed on the thin film.  
(Claim 6)

Art Unit: 1795

Regarding claim 6, Okubo teach a metal film formed on a thin film. (Machine Translation Paragraph 0051)

The motivation for utilizing the features of Okubo is that it allows for preventing leakage of exposing light. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Okubo because it allows for preventing leakage of exposing light.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-Th with every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/523,470  
Art Unit: 1795

Page 6

/Rodney G. McDonald/  
Primary Examiner, Art Unit 1795

Rodney G. McDonald  
Primary Examiner  
Art Unit 1795

RM  
September 3, 2008